

Development of a Model Rule on DG Emissions

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Introduction: Year 2 Subcontract Activities

- Conduct workshops for states adoption of subcontract materials for removing or overcoming barriers to DR
- Complete a draft model emissions performance standard (model rule)



Purpose

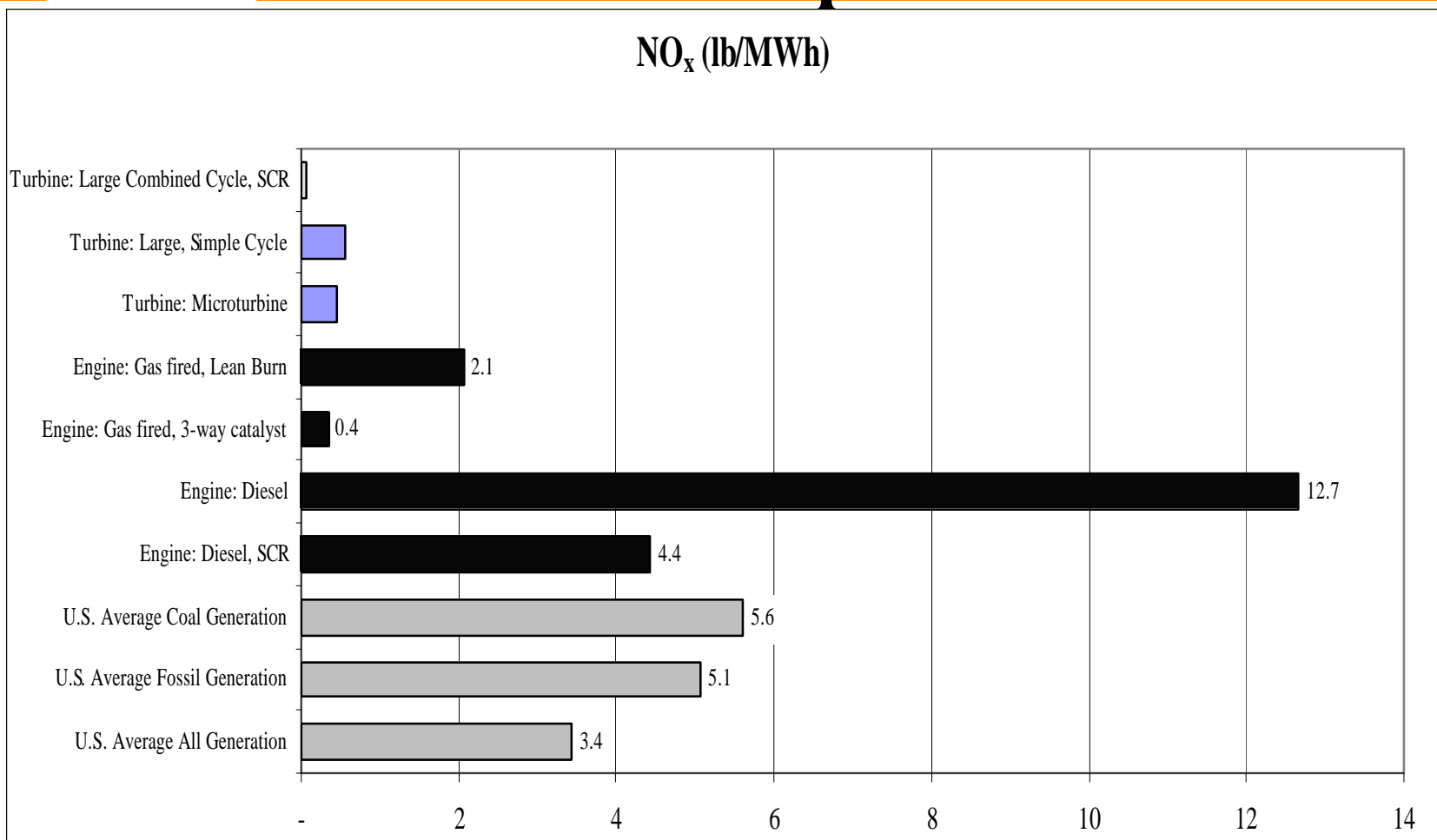
- Recognizing the role of DR in existing and restructured electricity markets
- Collaborating to develop model emissions standards for distributed generation



Purpose

- What concerns are being addressed?
 - Environmental protection with technology and industry changes
 - Promoting clean DR
 - Administrative simplicity
 - Promoting certification of small engines conformance to clean standards

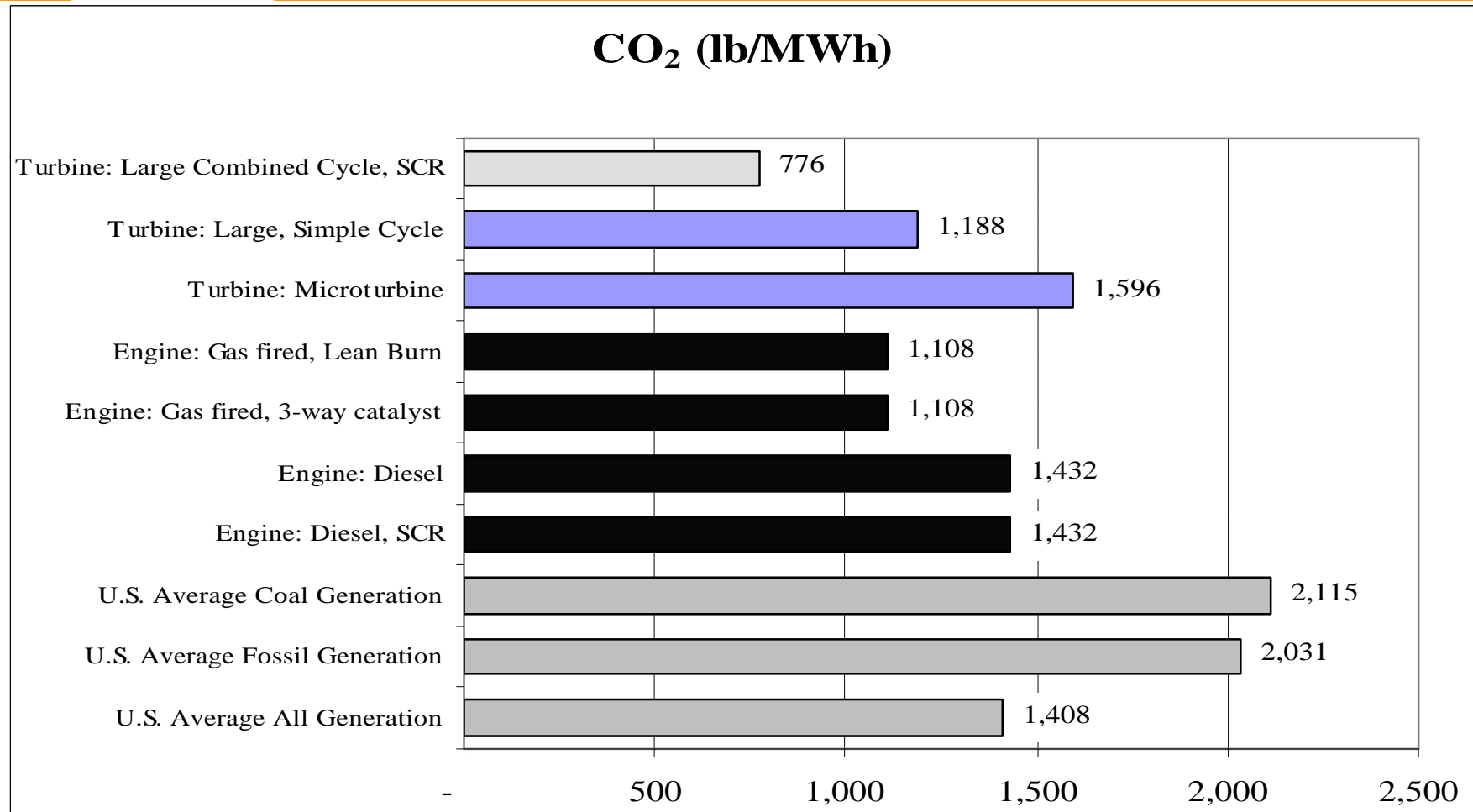
Emissions Comparison



Source: Bluestein, EEA



Emissions Comparison



Source: Bluestein, EEA



Principles Guiding Development of the Rule

- The model emissions standards should:
 - Lead to improved air quality, or at least do no additional harm
 - Be technology-neutral and fuel-neutral, to the extent possible
 - Address issues surrounding existing vs. new DR



Principles Guiding Development of the Rule

- The model emissions standards should:
 - Promote technological improvements in efficiency and emissions output
 - Encourage the use of non-emitting resources
 - Account for the benefits of CHP and the use of otherwise flared gases
 - Be easy to administer
 - Facilitate the development, siting, and efficient use of DR



Organization of the Working Group

- 25-30 members encompassing: state energy regulators, state and federal air quality regulators, manufacturers, interest groups (environmental and industry)
- Work done primarily by conference call and e-mail; two face-to-face meetings



Status of Effort

- Three work groups established after January 2001 meeting
 - Emissions, Certification, Credits for Offsets (CHP, flared gases, energy efficiency)
- May 2001 meeting
- November 2001 Public Review Draft
- Revisions, winter and spring 2002
- Final model rule, Summer 2002



Key Issue: Applicability

- What types of sources should be covered?
- What sizes of engines should be addressed?
(not covered by NSR or state BACT)
 - Limit by tons, kW, hours of operation?
 - Less than 1 MW, 500 kW, 200 kW, 50 kW?
- What functions should be covered?
 - Emergency, peaking, baseload



Key Issue: Emissions

- Establish “appropriate” emissions standards
 - Better than grid average, as good as new BACT for large combined cycle sources, LAER?
- Pollutants: NO_x, PM, CO, CO₂, SO₂



Proposed Emissions Limits

- Emergency Generators
 - 300 hours annual operation
 - 30 hours annual maintenance (included in the 300 total)
 - EPA off-road engine standards, expressed in pounds/MWh



Proposed Emissions Limits

- For NO_x , PM, CO, CO_2 :
 - Output-based limits: pounds per MWh
- For SO_2 :
 - Diesel is the issue
 - Ultra-low sulfur fuel requirement
 - Following EPA on-road requirements
- Technology review prior to Phase Three



Proposed NO_x Limits

Non-Emergency Generators

	Non-Attainment	Attainment
Phase I (2004)	0.6	4
Phase II (2008)	0.3	1.5
Phase III (2012)	0.15	0.15



Proposed PM Limits

All Duty Cycles, All Areas

Phase One (2004)	0.7
Phase Two (2008)	0.07
Phase Three (2012)	0.03



Proposed CO Limits

All Duty Cycles, All Areas

Phase One (2004)	10.0
Phase Two (2008)	2.0
Phase Three (2012)	1.0



Proposed CO₂ Limits

All Duty Cycles, All Areas

Phase One (2004)	1900
Phase Two (2008)	1900
Phase Three (2012)	1650



Future Activities

- Summer 2002 -- complete documentation of the model emissions draft standard
- September 2002 – draft annual report
- Option Year 2 (Oct. 2002 – 2003):
 - Conduct workshops on encouraging states adoption of subcontract information resources for removing or overcoming regulatory barriers to DR, including model emissions rule



Subcontract Information Resources

- ***DRAFT Model Regulations for the Output of Specified Air Emissions from Smaller-Scale Electric Generation Resources – Model Rule and Technical Support Documents;*** RAP
- ***State Regulatory Policy and Distributed Resources: Accommodating Distributed Resources in Wholesale Markets;*** F. Weston with C. Harrington, D. Moskovitz, W. Shirley, R. Cowart, and R. Sedano; T. Basso, NREL Technical Monitor, NREL TP-32497
- ***State Regulatory Policy and Distributed Resources: Distributed Resources and Electric System Reliability;*** R. Cowart with C. Harrington, D. Moskovitz, W. Shirley, F. Weston, and R. Sedano; T. Basso, NREL Technical Monitor, NREL TP-32498
- ***State Regulatory Policy and Distributed Resources: Distributed Resource Distribution Credit Pilot Programs: Revealing the Value to Consumers and Vendors;*** D. Moskovitz with C. Harrington, W. Shirley, R. Cowart, R. Sedano, and F. Weston; T. Basso, NREL Technical Monitor, NREL TP -32499
- ***State Regulatory Policy and Distributed Resources: Distribution System Cost and Methodologies for Distributed Generation;*** W. Shirley with R. Cowart, R. Sedano, F. Weston, C. Harrington, and D. Moskovitz; T. Basso, NREL Technical Monitor, NREL TP-32500
- ***State Regulatory Policy and Distributed Resources: Distribution System Cost Methodologies for Distributed Generation Volume II Appendices;*** D. Moskovitz with C. Harrington, W. Shirley, R. Cowart, R. Sedano, and F. Weston; T. Basso, NREL Technical Monitor, NREL TP-32501